
HistAstro Documentation

Release 0.0.1

Marc van der Sluys

Sep 04, 2023

Contents:

1	histastro package	1
1.1	Submodules	1
1.1.1	histastro.constants module	1
1.1.2	histastro.coordinates module	2
1.1.3	histastro.datetime module	2
1.1.4	histastro.moon module	2
1.1.5	histastro.planets module	2
1.1.6	histastro.plot module	2
1.2	Module contents	2
2	Indices and tables	3
	Python Module Index	5
	Index	7

1.1 Submodules

1.1.1 histastro.constants module

Definition of constants for HistAstro.

```
histastro.constants.AU = 149597870.7
    Astronomical unit in km

histastro.constants.as2r = 4.84813681109536e-06
    Arcseconds to radians

histastro.constants.d2r = 0.017453292519943295
    Degrees to radians

histastro.constants.earthRad = 6378.1366
    Earth radius in km

histastro.constants.h2r = 0.2617993877991494
    Hours to radians

histastro.constants.jd1820 = 2385801
    JD in 1820 (for Delta-T fit)

histastro.constants.jd1900 = 2415021
    JD in 1900

histastro.constants.jd2000 = 2451545
    JD in 2000.0

histastro.constants.mas2r = 4.84813681109536e-09
    Milliarcseconds to radians

histastro.constants.moonRad = 1737.5
    Moon radius in km

histastro.constants.pi = 3.141592653589793
    pi

histastro.constants.pi2 = 6.283185307179586
    2 pi
```

```
histastro.constants.pio2 = 1.5707963267948966
    pi/2
```

```
histastro.constants.r2d = 57.29577951308232
    Radians to degrees
```

1.1.2 histastro.coordinates module

1.1.3 histastro.datetime module

1.1.4 histastro.moon module

1.1.5 histastro.planets module

1.1.6 histastro.plot module

Plot-related functions for HistAstro.

```
histastro.plot.mag2size (Mlim, mag, scale=1)
```

Convert magnitudes (mag) to disc area ('size') for plotting with `pyplot.scatter()`, given a magnitude limit Mlim.

Parameters

- **Mlim** (*float*) – Magnitude limit.
- **mag** (*float*) – Magnitude (Numpy array).
- **scale** (*float*) – Scale factor (default value = 1).

Returns Area sizes for the stellar discs (Numpy array)

Return type float

1.2 Module contents

HistAstro module

HistAstro is a Python package for basic historical-astronomy calculations of Sun, Moon and planets, which can be used under the conditions of the GPLv3 licence. These pages contain the API documentation. For more information on the Python package, licence, source code and data files, see the [HistAstro homepage](<http://astro.ru.nl/~sluys/HistAstro/>).

CHAPTER 2

Indices and tables

- `genindex`
- `modindex`
- `search`

h

`histastro`, [2](#)
`histastro.constants`, [1](#)
`histastro.plot`, [2](#)

A

`as2r` (*in module `histastro.constants`*), 1
`AU` (*in module `histastro.constants`*), 1

D

`d2r` (*in module `histastro.constants`*), 1

E

`earthRad` (*in module `histastro.constants`*), 1

H

`h2r` (*in module `histastro.constants`*), 1
`histastro` (*module*), 2
`histastro.constants` (*module*), 1
`histastro.plot` (*module*), 2

J

`jd1820` (*in module `histastro.constants`*), 1
`jd1900` (*in module `histastro.constants`*), 1
`jd2000` (*in module `histastro.constants`*), 1

M

`mag2size()` (*in module `histastro.plot`*), 2
`mas2r` (*in module `histastro.constants`*), 1
`moonRad` (*in module `histastro.constants`*), 1

P

`pi` (*in module `histastro.constants`*), 1
`pi2` (*in module `histastro.constants`*), 1
`pio2` (*in module `histastro.constants`*), 1

R

`r2d` (*in module `histastro.constants`*), 2